Corn Diseases

Disease	Cause	Symptoms	Control
SEED ROTS AND SEEDLING BLIGHTS	Pythium spp., Fusarium spp. and several others	a. Seed Rots - seed rots before germination. b. Damping-off and seedling blight. Soft rot of stem near ground. c. Seedling Wilt - gray discoloration starting at the leaf tips. d. Root Rots - water-soaking, browning and sloughing of rootlets.	1. Sow injury-free seed of resistant varieties. 2. Plant seed in warm, fairly moist soil (above 12.8°C): proper seedbed preparation; correct placement of fertilizer herbicide and other pesticides. 3. Use seed-protectant fungicides, e.g. Captan or Thiram.

Corn Stalk Rots and Root Rot

Disease	Cause	Symptoms	Control
CHARCOAL ROT	Macrophomina phaseoli	Attacks seedlings or plants approaching maturity. Brown water-soaked lesions on roots later turning brown. Causes premature ripening, shredding and breaking at crown. Very small black sclerotia on vascular stands give interior of stalk a charred appearance.	1. Soil temperatures above 37°C are favorable for disease. 2. In irrigated areas, charcoal rot can be minimized by maintaining moist soils. 3. Balanced soil fertility; avoid high levels of N and low levels of K. 4. Reduce plant population.
GIBBERELLA STALK ROT	Gibberella zeae	Shredding of pith tissue, usually a reddish coloration of pith. Softening and discoloration of exterior of lower internodes. Sudden onset of gray-green color of leaves of early infected plants.	1. Full-season hybrids are generally more resistant. 2. Balanced fertility, high N and low K increase disease severity. 3. Lower plant populations.
DIPLODIA STALK ROT	Diplodia maydis	Diseased stalks are weakened and break readily. Occasionally minute black pycnidia, the fruiting bodies of the fungus, form in the fall just beneath surface of lower internodes. Pith may be disintegrated and discolored.	1. Same as Gibberella Stalk Rot.
FUSARIUM STALK ROT	Fusarium moniliforme	Same as with other stalk rots. No distinct coloration of the pith sets stalks apart of different diseases.	1. Same as Gibberella Stalk Rot.
PYTHIUM STALK ROT	Pythium aphanidermatum	Usually confined to a single internode just above the soil line. Stalks are not completely broken off. Diseased area is brown, water-soaked, soft and collapsed. Stalks may be twisted and distorted. Disease becomes evident shortly before or after corn has tasseled.	No specific control for this disease is known although there is evidence that differences in resistance are found among inbred lines.

Corn Ear Rots

Disease	Cause	Symptoms	Control
DIPLODIA EAR ROT	Diplodia maydis	Husks of early-infected ears appear bleached or straw-colored. Lightweight ears usually stand upright with inner husks adhering tightly to one another on the ear because of mycelial (mold) growth between them. Black minute pycnidia may be scattered on husks, floral bracts and sides of kernels. Ears infected later in growing season may show no external symptoms, but when ears are broken, a white mold is found growing between kernels whose tips are discolored. Infection usually begins at ear base.	1. Early harvest. 2. Proper storage; below 18% moisture initially for ears, 15% for shelled grain.
FUSARIUM KERNEL OR EAR ROT	Fusarium moniliforme	A salmon-pink to reddish-brown discoloration first appears on caps of individual kernels or groups of kernels scattered over ear. A powdery or cottony-pink mold growth develops on infected kernels. Fungus commonly becomes established around channels made by earworms or corn borers. Disease favored by dry, warm weather.	1. Same as Diplodia Ear Rat.
COB ROT	Nigrospora oryzae	Shredding of cob, usually at the butt end. Shredding occurs when ears are picked mechanically or later when ears are shelled. Kernels may show gray mycelium and are "peppered" with small, round, black spores. Ears are lightweight, with kernels slightly bleached, poorly finished and easily pressed into cob.	1. Grow full-season adapted varieties. 2. Balanced soil fertility. 3. See Diplodia Ear Rot.
PENICILLIUM EAR ROT	Penicillium oxalicum	Occurs primarily on ear injured mechanically or by insects. A powdery, green or blue-green mold occurs on and between kernels, usually at ear tip.	1. Reduce mechanical and insect damage. 2. Harvest as soon as possible. 3. Dry corn when above 15% moisture for shelled corn.

Corn Storage Rots

Disease	Cause	Symptoms	Control
SEVERAL KINDS OF STORAGE ROTS	Aspergillus spp. Penicillum spp.	Storage rots may develop on ear or shelled corn in storage, causing a reduction in feed and market value. Aspergillus flavus produces a poison toxic to man and animal. Invasion of whole kernels in bins results in discoloration, heating, caking and mustiness.	1. Reduce moisture as rapidly as possible to 13% and aerate to maintain a uniform temperature of 4 to 10^{o}C throughout the bulk. 2. Chemical storage additives are effective if used before rots occur.

Corn Leaf Diseases

Disease	Cause	Symptoms	Control
NORTHERN CORN LEAF BLIGHT (NCLB)	Helminthosporium turcicum	NCLB is recognized by long elliptical gray-green or tan spots on leaves (2.5 to 15cm). Lesions first appear on lower leaves, as season progresses until nearly all leaves are covered. Often spores are arranged in concentric zones so that a faint targetlike pattern in lesions is evident. Kernels are not attached. Disease is retarded by dry weather.	1. Some varieties may have some resistance. 2. When practical fungicides may be applied to leaves when lesions are first found.
SOUTHERN CORN LEAF BLIGHT (SCLB)	Helminthosporium maydis	Lesions are generally parallel-sided, grayish tan and range in size from minute chlorotic flecks up to 3 cm. yellowish-green halos surround leaf lesions. The new race attacks all parts of corn plant.	1. Use resistant varieties.
GRAY LEAF SPOT	Cercospora zeae-maydis	Leaf spots of this disease usually appear several weeks after silking as long, narrow, tan lesions ranging up to 1/2 by 2-3 cm. Lesions become gray, growing to the growth of the fungus on the surface of the dead leaf tissue.	1. Plow under infected leaves in the fall. 2. Practice rotation. 3. Use resistant varieties under no-till.
BROWN SPOT	Physoderma maydis	Lesions first appear near the base of leaf blade as yellowish spots that later turn brown. Stalks become infected at nodes beneath sheaths. When severe, most of leaves below ear die prematurely and stalks break at nodes.	1. Plow under crop residue in the fall. 2. Rotate. 3. Avoid susceptible varieties.

Corn Rusts

Disease	Cause	Symptoms	Control
COMMON CORN RUST	Puccinia sorghi	Oval to elongate cinnamon-brown pustules scattered over both surfaces of leaves. As corn matures pustules become brownish black. Pustules may appear on any above-ground parts of plant. Pustules break through epidermis early in their development. This is one characteristic that differentiates this rust from Southern Corn Rust.	1. Plant early to avoid damage.
SOUTHERN CORN RUST	Puccinia polysora	Pustules are definitely lighter in color, smaller and more circular than those of common rust. Epidermis remains intact over postules for a longer time than common rust, but eventually ruptures.	1. Plant early to avoid damage.

Corn Virus and Mycoplasma-Like Diseases

Disease	Cause	Symptoms	Control
MAIZE DWARF MOSAIC (MDM) (Corn Stunt)	Maize Dwarf Mosaic Virus (MDMV)	Similar to corn stunt. Shortening of upper internodes that imparts a "featherduster" appearance to plants. Leaves have a finely stippled mottle or mosaic of light and dark green on youngest leaves. As plants mature, mosaic disappears and leaves become yellowish green and frequently show blotches or streaks of red. Severely infected plants are barren or show poor seed set. Symptoms are most severe on plants infected early.	1. Use resistant varieties. 2. Eradication of johnsongrass in field. 3. Destruction of the aphid vector is not feasible from a practical standpoint.
MAIZE CHLOROTIC DWARF (MCD)	Maize Chlorotic Dwarf Virus (MCDV)	Fine chlorotic striping associated with small visible veins. Chlorotic stripes may extend for some distance and are parallel to veins. As plants age, leaves may take on a yellowish and reddish discoloration. Stunting is very pronounced. Horizontal splitting of leaf margins may occur. Transmitted by leafhopper Graminella nigrifrons.	1. Plant tolerant hybrids. 2. Plant early to avoid leafhoppers. 3. Eradicate johnsongrass.
CORN STUNT (Not found in Tennessee)	Mycoplasma-like organism (Not a virus)	Small circular to elongated, chlorotic spots develop at base of young plants. Often these coalesce and become elongated stripes that may be discrete or diffused. Chlorosis, redding of leaves, proliferation of ear shoots and suckers and pronounced reduction in internode length are characteristic symptoms. May be confused with Maize Dwarf Mosaic.	1. Corn stunt agent is transmitted by five leafhopper species. 2. Use resistant varieties.

Corn Smut Disease

Disease	Cause	Symptoms	Control
COMMON SMUT	Ustilago maydis	Conspicuous galls are first covered with white membrane. Galls are powdery black inside with masses of spores. Galls occur on any part of plant and can be almost any size and shape.	1. Avoid injury or susceptible varieties. 2. When practical, remove galls before they break open. 3. Rotate when possible. 4. Avoid injury from herbicides.

Sorghum Diseases

Disease	Cause	Symptoms	Control
SEEDLING BLIGHT	Fusarium sp., Pythium sp., Helminthosporium sp.	Pre-emergent death of seedlings accompanies by water-soaked and rotted seedling tissue. Post-emergent unthrifty seedlings or death of seedlings accompanies by rotted roots, stems, etc.	Use seed treatments, crop rotation with non-grass crops. Use high-quality seed. Control nematodes and soil insects.
ANTHRACNOSE	Colletotrichum sp.	Leaf spots that are circular to oval which can be as large as 1" in diameter but usually smaller. Young lesions are reddish to purple and appear as small dots. Mature lesions have distinct dark purple margins with lighter colored centers. Lesions often more distinct along midrib. Infects other parts also.	Treat seed and use crop rotation. Early planting may escape some damage.
ZONATE LEAF SPOT	Gloecercospora sorghi	Symptoms first appear as small spots red to brown in color accompanied by water-soaked tissue. Semi-circular to circular bull's-eye spots later occur. These spots range from small spots to 3" or more in diameter. Rings of purple and brown appear alternately.	Purchase disease-free seed. Treat seed. Forage sorghum is more susceptible than grain sorghum.
HEAD MOLD	Caused by several fungi	Seeds, glumes, and rachis parts blemished by purple spotting or presence of pink, red, brown, or green mold growth.	No control at present time.

Precautionary Statement

To protect people and the environment, pesticides should be used safely.
This is everyone's responsibility, especially the user.
Read and follow label directions carefully before you mix, apply store or dispose of a pesticide.
According to laws regulating pesticides, they must be used only as directed by the label.
Persons who do not obey the law will be subject to penalties.

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